

Space Separatism

Degree of Differentiation

Capt Luke R. Stover, USAF

Dr. Alan Johnson, Lieutenant Colonel, USAF, Retired

Space activities are critical to the Nation's technological advancement, scientific discovery, security, and economic growth.

—National Space Transportation Policy
21 November 2013



The importance of space is clearly articulated in the introduction of last year's *US National Space Transportation Policy*.¹ However, the far-reaching benefits of space activity on society are diffi-

Disclaimer: The views and opinions expressed or implied in the *Journal* are those of the authors and should not be construed as carrying the official sanction of the Department of Defense, Air Force, Air Education and Training Command, Air University, or other agencies or departments of the US government. This article may be reproduced in whole or in part without permission. If it is reproduced, the *Air and Space Power Journal* requests a courtesy line.

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE DEC 2014		2. REPORT TYPE		3. DATES COVERED 00-00-2014 to 00-00-2014	
4. TITLE AND SUBTITLE Space Separatism: Degree of Differentiation				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Air Force Research Institute (AFRI), Air and Space Power Journal, 155 N. Twining Street, Maxwell AFB, AL, 36112				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 22	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

cult to comprehend, much less quantify. Also challenging to understand is the interaction between various governmental and nongovernmental agencies that provide for space activities. One of those organizations—a major stakeholder in and provider of space activities—is the Department of Defense (DOD).

Space is so important that the DOD recognizes it as one of five domains in which US forces operate (the other four are land, sea, air, and information).² In 2001 Secretary of Defense Donald Rumsfeld designated the Department of the Air Force (DAF) the “Executive Agent for Space for the DOD.”³ Given the national importance of space activities, the formation of a separate space force has been a topic of persistent discussion in academic and doctrinal circles ever since the United States first entered the space age. Proponents of a separate force argue that because space is an inherently unique domain, forces operating there should be organized, trained, equipped, and funded separately—as are air, land, and sea forces.⁴ Opponents highlight the interconnectedness of space activities in the other domains as primary justification for maintaining the status quo.⁵

Recognizing the complexity of the issue, for purposes of this article, we assume that the proponents are justified and that space is a unique domain, meriting organizational status as such. If we believe that space activities should be organized as a distinct and separate force, then the question becomes one of degree. How separate should a DOD space organization be? This article examines five proposed models presented in the literature regarding creation of a separate organization to manage space for the DOD (fig. 1). We examine them from four distinct perspectives: financial efficiency, operational effectiveness, logistics considerations, and policy considerations. Collectively, these perspectives allow for a robust comparison of the potential implications associated with each of the five proposed models.

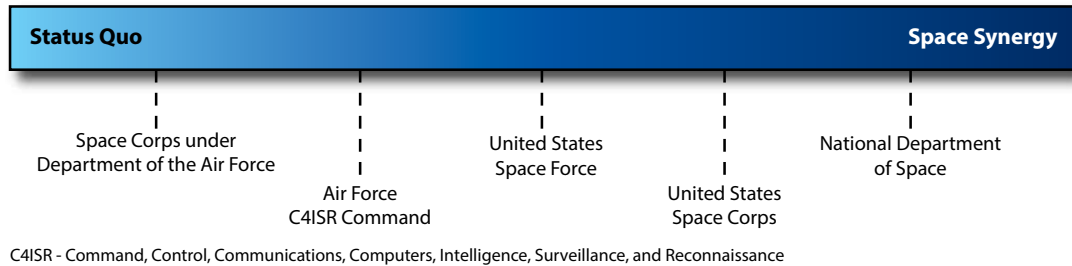


Figure 1. Spectrum of space separatism

Status Quo

Starting at the left end of the spectrum, we begin by briefly addressing the current model for space activities within the DOD. Although the DAF may be the DOD's executive agent for space, the Department of the Navy (DON) and the Department of the Army (DA) play a supporting role in effecting DOD space activities, broadly defined in enclosure 6 of DOD Directive (DODD) 5100.01, *Functions of the Department of Defense and Its Major Components*.⁶ These functional activities are summarized in table 1. Collectively, the military departments provide space forces to US Strategic Command (USSTRATCOM) in support of national security objectives. This synopsis clearly delineates the supporting role of the DA and DON versus the operational role of the DAF in DOD space activities. Less apparent are the financial, operational, logistical, and policy implications of this current structure.

Table 1. Space functions of military departments

<i>Space Operations</i>		
<i>Functions of the Army</i>	<i>Functions of the Navy</i>	<i>Functions of the Air Force</i>
<p>"Provide support for space operations to enhance joint campaigns, in coordination with the other Military Services, Combatant Commands, and USG [US government] departments and agencies" (emphasis added).</p>	<p>"Provide support for joint space operations to enhance naval operations, in coordination with the other Military Services, Combatant Commands, and USG departments and agencies" (emphasis added).</p>	<p>"Conduct offensive and defensive operations to gain and maintain space superiority to enable the conduct of operations by U.S. and allied land, sea, air, space, and cyberspace forces."</p> <p>"Conduct space operations to enhance joint campaigns, in coordination with the other Military Services, Combatant Commands, and USG departments and agencies" (emphasis added).</p> <p>"Conduct global integrated command and control for air and space operations" (emphasis added).</p>

Source: DODD 5100.01, *Functions of the Department of Defense and Its Major Components*, 21 December 2010, 30–31, 34, <http://www.dtic.mil/whs/directives/corres/pdf/510001p.pdf>.

For fiscal year (FY) 2014, the DOD requested a total of \$11.8 billion in support of space activities.⁷ Of this total, approximately \$10.1 billion (86 percent) originated from the DAF.⁸ This amount is in line with historical levels wherein the DAF accounts for 85 percent of space-related DOD budget activity per FY.⁹ The division of budget resources among military departments is synchronous with the operational capability that they provide the DOD.

The DAF makes available bases, facilities, and space systems to carry out space operations in support of US combatant commanders and other government agencies. Air Force Space Command conducts operations including space lift and satellite launch for the DOD and other government agencies, as well as surveillance, missile warning, nuclear detection, position, navigation, timing, weather activities, and communications.¹⁰

The DA channels space support through Army Space Command, which assists the Defense Satellite Communications System in providing

worldwide communications capability. Through a network of ground terminals and receivers, the DA collects and receives space, air, and ground intelligence. Finally, Army Space Command performs space surveillance operations from Kwajalein Atoll in the Marshall Islands.¹¹

The DON performs space support under the purview of Naval Space Command, responsible for operating surveillance and warning space systems, tracking spacecraft telemetry, and performing on-orbit engineering. However, the command's primary mission is to provide space support to operational naval units around the world.¹²

The logistical implications of the current model for space activities are best understood through the lens of the seven principles of logistics defined in Joint Publication 4-0, *Joint Logistics*. These principles, summarized in table 2, serve as a backdrop for later discussion of logistic considerations within the five proposed models.

Table 2. Seven principles of logistics

<i>Principle</i>	<i>Definition</i>
<i>Responsiveness</i>	"Providing the right support when and where it is needed . . . characterized by the reliability of support and the speed of response to the needs of the joint force."
<i>Simplicity</i>	"Clarity of tasks, standardized and interoperable procedures, and clearly defined command relationships."
<i>Flexibility</i>	"The ability to improvise and adapt logistic structures and procedures to changing situations, missions, and operational requirements."
<i>Economy</i>	"The minimum amount of resources required to bring about or create a specific outcome . . . achieved when support is provided using the fewest resources within acceptable levels of risk."
<i>Attainability</i>	"The assurance that the essential supplies and services available to execute operations will achieve mission success."
<i>Sustainability</i>	"The ability to maintain the necessary level and duration of logistics support to achieve military objectives."
<i>Survivability</i>	"The capacity of an organization to prevail in spite of adverse impacts or potential threats."

Source: Joint Publication 4-0, *Joint Logistics*, 16 October 2013, I-9–I-10, http://www.dtic.mil/doctrine/new_pubs/jp4_0.pdf.

All three military departments currently operate under overarching policy contained in DODD 3100.10, *Space Policy*, which stipulates that the secretaries of the military departments shall develop departmental-level policies and programs in support of national security objectives; internally integrate space capabilities into every aspect of the departments' strategy, doctrine, training, and operations; and organize, train, and equip for space operations. DODD 3100.10 also directs the Joint Staff, combatant commanders, defense agencies and field activities, and other DOD components to carry out space-related duties in support of national security objectives.¹³ This policy amplifies guidance from two all-encompassing national policies regarding space—the *National Space Policy* and the *National Space Transportation Policy*.¹⁴

Overarching space policy does not guarantee either operational efficiency or effectiveness of DOD space activities. For example, Lt Gen Michael Hamel, USAF, retired, asserts that “today military space includes numerous stovepiped systems operated by different communities, services, and agencies that use different concepts and approaches for operating and employing these capabilities in peace, crisis, and war.”¹⁵

Viewed collectively, the financial efficiency, operational effectiveness, logistics considerations, and policy implications of the status quo raise questions about the utility of the current US model for space operations. An \$11.8 billion DOD budget request in FY 2014 for space operations during a fiscally constrained environment, the current lack of interdepartmental coordination regarding space policy and operations, and the expansive logistics footprint necessary to sustain these various departments support the concept of a separate, dedicated space-organization model.

Critics of the status quo argue that the current narrow focus on individual, department-specific missions and the absence of interdepartmental coordination have resulted in a degraded US space capability. Arati Prabhakar, director of the Defense Advanced Research Projects Agency, suggests that the current US space environment is analogous to ducks on a lake in winter: “These ducks would cluster at twilight,

and they'd sit in the lake, and they would stop moving, and the lake would start icing up around them. Eventually, they would just freeze in place on this lake. . . . Tragically, that's what it feels like to me when I think about where we are in terms of our ability to react and do what we need to do quickly [and] cost effectively in space for national security purposes."¹⁶

Given this apparent atrophy of US space operations, perhaps a shift in organizational construct is the catalyst needed to strengthen the effectiveness and efficiency of the status quo. An examination of the five proposed constructs along the spectrum of space separatism begins with the creation of a Space Corps under the purview of the DAF.

Space Corps under the Department of the Air Force

In 2001 Congress directed the formation of a Commission to Assess United States National Security Space Management and Organization. One of the items studied by the commission was the establishment of a separate Space Corps within the DAF. According to the commission's report, "Existing Air Force space forces, facilities, units and personnel, and military space missions could be transferred to a Corps. A Space Corps could have authority for acquisition and operation of space systems, perhaps to include both DOD and Intelligence Community systems, while leveraging existing Air Force logistics and support functions."¹⁷ The report also examined the financial efficiency of such a model.

From a financial efficiency perspective, little change from the status quo is expected under this proposal. The same \$10.1 billion currently budgeted for space activities within the US Air Force would come under the control of a Space Corps that would still have to compete for DAF resources.¹⁸ Furthermore, Air Force support agencies would still need to sustain Space Corps forces. In short, a financial net-sum gain of zero is expected under the proposed model. Conversely, under this model, positive change is expected with regard to operational effectiveness.

Just as the Air Force found its operational niche in the basis of the Army Air Corps, so could a space force refine its operational efficacy under a separate corps. According to the commission, a Space Corps could develop forces, doctrine and concepts of operation for space systems.¹⁹ The commission envisioned the evolution of a Space Corps into a full-fledged Space Force or Space Department as forces, doctrine, and concepts of operations mature. This concentration on space activities would be aided through reliance upon existing logistics and support functions from within the Air Force.

The logistics considerations of a separate Space Corps would remain virtually unchanged from the status quo. The only logistics principle that might be positively influenced under this model is *simplicity*. Allowing the Air Force to manage its logistics functions should enable a Space Corps to focus on its core mission of space capabilities in accordance with DOD space policy.

Air Force Policy Directive (AFPD) 13-6, *Space Policy*, states that “the Air Force will recruit, sustain, and retain a workforce of highly skilled military and civilian space professionals proficient in operations, technical expertise, policy, strategy, acquisitions, contracting, managerial oversight and leadership.”²⁰ Further, “the Air Force will provide space capabilities and forces, integrating them into Air Force plans, operations, and training while contributing to and enabling joint and combined forces.”²¹ A functional corps, dedicated to the development of space professionals, missions, and applications, is certainly in line with this strategic vision. The next proposed model on the spectrum of space separatism incorporates additional functional activities via the creation of an Air Force Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Command.

Air Force C4ISR Command

The opening section of this article highlighted that space is a unique domain. However, some individuals have contended that viewing

space from a domain-focused perspective is shortsighted.²² Instead, critics maintain that space should be viewed as an effects-based medium. The effects produced by space activities are largely encompassed within C4ISR operations. Therefore, some have proposed that the Air Force could create a C4ISR Command to concentrate C4ISR functional operations, including space activities, under a coordinated, effects-based model.²³ Lt Gen John Koziol, USAF, retired, former commander of the Air Force ISR Agency, remarked that the result of such a model should be “an all-source, full-spectrum ISR mission-capable organization.”²⁴ This model also effectively incorporates the fifth DOD domain (information) into Air Force operations. By including a broad range of functional activities under a single command, this model has potentially far-reaching financial implications.

In addition to the \$10.1 billion Air Force space budget for FY 2014, \$14.2 billion of the service's C4ISR-related budget resource would be reallocated to Air Force C4ISR Command under the proposed model.²⁵ Future budget-request reductions under the proposed model are not guaranteed, but the synergy created through the coalescence of these functional activities will probably yield more efficient operations and therefore reduce the baseline budget of \$24.3 billion under the status quo for FY 2014. The \$24.3 billion figure represents 21 percent of the Air Force's \$114.1 billion baseline budget request for FY 2014.²⁶ Just as 21 percent is a substantial portion of the service's budget, so are the implications regarding operational effectiveness under the proposed model of considerable significance.

Under an Air Force C4ISR model, the commander could concentrate on the interrelationship of C4, ISR, and space activities to deliver effects for the DOD and other governmental agencies in support of national interests.²⁷ Dr. Edward Tomme notes that a C4ISR Command

would become a much more effective organization for supporting USSTRATCOM's Joint Functional Component Command for ISR. It would work hand in glove with other intelligence organizations such as the National Geospatial-Intelligence Agency [NGA] and the National Security

Agency [NSA] to satisfy combatant command and national operational and intelligence requirements.²⁸

The interconnectedness of the proposed command would also likely streamline the logistics support requirements of the model.

The integration of C4, ISR, and space systems could improve the interoperability of those systems. As new space systems are designed to incorporate and exploit C4 and ISR capabilities, these *simplified* systems should be more *responsive* to the needs of the intelligence community and provide *flexible* options to combatant commanders in an *economical* manner with little duplication of intraservice effort.

This proposed model supports guidance in AFRP 13-6 for the Air Force to “integrate space surveillance, intelligence, and other information from commercial, civil, international partners, and national security sources to develop timely and accurate SSA [space situational awareness].”²⁹ Before space activities can be integrated outside the DOD, they must first be integrated internally. The next step on the spectrum of space separatism attempts to do just that.

United States Space Force

Creation of a separate US Space Force is perhaps the most obvious and commonly cited model for space organizational reform within the DOD. Proponents of such a model attempt to mesh the uniqueness of space with the current DOD organizational structure. They assert that just as the US Army exists because land is a unique domain, so we should have a US Space Force to operate in the distinct realm of space. The advancement of technological capabilities peculiar to space, the need for acquisition reform of space systems, a call for organizational reform across the DOD, and constrained DOD and Air Force budgets are also commonly cited as reasons why the US Space Force model makes sense.³⁰ The final argument is perhaps the timeliest, given the current fiscal realities of the US government.

The DOD budgeted \$11.8 billion for space activities in the current FY. Under the proposed model, these budget resources should flow to the US Space Force. Additionally, establishment of a separate US Space Force would force the DOD to budget additional resources to provide staff positions and support activities germane to operating a military service. As an estimate of the number of resources these activities consume, the Air Force budgeted \$6.5 billion in FY 2014 for DAF administration and servicewide administration and support activities.³¹ If we add this notional amount, the estimated budget request for a US Space Force is, at minimum, \$18.3 billion. Is this budget level justified by an associated increase in operational effectiveness?

At the heart of this question lies a secondary question—what is the role of space in DOD operations? Proponents of a US Space Force hold that space activities are now viewed primarily from the perspective of mission support to other operational activities.³² Conversely, advocates of space separatism call for space activities to perform full-spectrum operations. Their premise is that a US Space Force would be free to conduct offensive, defensive, stability, and civil-support operations from the space domain.³³ This additional operational capability may indeed justify the added expense of creating a separate US Space Force. Also justifiable are the logistical considerations associated with such a force.

Consolidation of all DOD space functions under a unified force would make it more *responsive* to support the needs of customers, both internal and external to the DOD. A clearly defined US Space Force command would *simplify* logistics support while simultaneously enhancing the *flexibility* of that support. Having complete control over logistics activities, a US Space Force would enhance the *attainability* of immediate logistical support and the *sustainability* of a prolonged effort. From a long-term perspective, a US Space Force meshes well with DOD and national space policy.

DODD 3100.10 observes that space activities “will balance protecting and defending U.S. space capabilities . . . with maintaining capabilities

to deter and, if necessary, defeat efforts to interfere with or attack U.S. or allied capabilities.”³⁴ A US Space Force would certainly be well situated to effect this strategic guidance, as would the next model on the spectrum of space separatism.

United States Space Corps

The placement of this model along the spectrum raises two obvious questions. First, how is this model different from a Space Corps under the DAF? Second, why is this model to the right of the US Space Force model on the spectrum?

Regarding the former question, this US Space Corps model is part of a more expansive one proposed by Kenneth Keskel, who envisions a functionally aligned, unified DOD structure in which the “teeth” of the services are delineated from the “tail.” The term “teeth” refers to the core war-fighting competencies of the services. Keskel argues that these functions should be realigned among smaller, more flexible corps (Air Corps, Navy Corps, Army Corps, Space Corps, etc.). The “tail” refers to support forces that sustain the services’ teeth. Keskel suggests that these functions should be consolidated under a joint support force.³⁵ Answering the first question should answer the second—a US Space Corps model calls for reform across the DOD, not just within the space community. Accordingly, the financial efficiency implications of this model are noteworthy.

Reforming the entire DOD implies potential economies across the department’s entire baseline budget (\$516 billion for FY 2014).³⁶ However, to accommodate comparison with other models, we excluded budget areas not associated with or in support of space activities. In total, this model considers \$11.8 billion for space activities and an additional \$48 billion for administrative and servicewide support functions.³⁷ Altogether, nearly \$60 billion in budgetary resources are under consideration for this model, and its potential influence on operational effectiveness is expansive.

Keskel postulates three operational benefits of implementing the proposed model. First, the corps would be able to focus exclusively on its core competencies. Second, functional duplication among services would be greatly reduced. Finally, interoperability between forces and operating systems would be significantly enhanced. In total, his model supports emerging missions, addresses current fiscal constraints, and improves “jointness” to fulfill objectives in accordance with national security guidance.³⁸

Under the US Space Corps model, logistics functions would largely be considered support activities and would therefore be consolidated under a joint-support force structure. Such consolidation would likely improve the *economy* of space logistics functions. Simultaneously, the focused nature of a US Space Corps should enhance the *responsiveness*, *simplicity*, and *flexibility* of logistics support. A decoupled logistics “tail” would probably adversely affect the attainability and sustainability of logistics support for space activities. Conversely, such degrees of separation might improve the *survivability* of space logistics activities. Keskel’s model is a major departure from the status quo financially, operationally, and logistically. Does this model synchronize with current space policy?

DODD 3100.10 directs that the “DOD will develop and integrate into an operational space force structure all appropriate space-related defense capabilities required to support national security objectives.”³⁹ The US Space Corps model could realize this consolidation of space activities under a defensewide, operationally engaged Space Corps. For the final model on the spectrum of space separatism, we open the aperture even further by examining the coordination of space activities across all US government agencies.

National Department of Space

As stated in the opening paragraph of this article, the DOD is not the only, or even the primary, player in the US space community. Numerous government and nongovernment agencies play an important role in

the interconnected domain of space. Lt Col Kristine Shaffer asserts that “given the depth and breadth of space, there exists a clear opportunity and the absolute need to establish one organization and one responsible leader to provide the national and global requirements, needs and capabilities, all day, every day.”⁴⁰ She proposes the creation of a National Department of Space (NDS) as a model towards this end.⁴¹

A review of DODD 3100.10 identifies current US government agencies that contribute to or are end users of US space activities, including the Defense Intelligence Agency (DIA), National Reconnaissance Office (NRO), National Aeronautics and Space Administration (NASA), NGA, and NSA.⁴² Shaffer’s model unites all of these agencies under an overarching NDS.⁴³ Merging the operations of six government agencies is certainly a drastic proposal, but the financial efficiency implications are remarkable.

The DOD’s budget request for space activities in FY 2014 was \$11.8 billion. Additionally, although budget request data for the DIA, NGA, NRO, and NSA are classified, the total budget request for the National Intelligence Program, which encompasses all of these agencies, was \$52.2 billion for FY 2014.⁴⁴ Finally, NASA’s budget for FY 2014 was \$17.8 billion.⁴⁵ In total, budget resources under consideration by this model amount to approximately \$82 billion. Perhaps more significant than this figure are the model’s implications regarding operational effectiveness.

Shaffer believes that the drastic change proposed under an NDS model “is required to elevate the importance of space within the nation, to enable the nation to better prioritize space-related activities, to promote greater coordination on space-related activities and to reduce redundant systems and capabilities while promoting interoperability with space- and non-space national and international communities.”⁴⁶ Essentially, this model recognizes the criticality of space in conducting modern warfare. The United States’ preeminence in space remains largely unquestioned. However, the effects of this position can be fully realized only under an organizational model that enables the seamless coordination

of all agencies that provide space activities. The NDS model may prove to be just that. Such interagency coordination is also likely to have beneficial effects on logistics considerations of US space activities.

The model would likely improve the *responsiveness, simplicity, flexibility, economy, attainability, sustainability, and survivability* of current space logistics support. By vertically integrating both suppliers and customers of space activities, the NDS could readily move beyond a logistics focus to adopt a supply chain perspective that integrates key processes from end user through original suppliers to foster a true enterprise focus.⁴⁷ Such a perspective is congruent with the *National Space Policy*.

According to that policy, the director of national intelligence shall “integrate all-source intelligence of foreign space capabilities and intentions with space surveillance information to produce enhanced intelligence products that support SSA.”⁴⁸ Further, the secretary of defense and the director of national intelligence are charged to “maintain and integrate space surveillance, intelligence, and other information to develop accurate and timely SSA. SSA information shall be used to support national and homeland security, civil space agencies, particularly human space flight activities, and commercial and foreign space operations.”⁴⁹ Both of these statements underscore the importance of interagency coordination to optimize existing and future space capabilities.

Summary

This article has examined five distinct models for space separatism from four perspectives. The following figures and tables summarize the implications of each perspective for each model along the spectrum of space separatism.

Figure 2 depicts the financial efficiency implications of the proposed models. The budget resources identified in this figure represent an opportunity for future budget reductions. A larger budget-resource figure indicates a greater opportunity to reduce budget requests for space activities in future FYs.

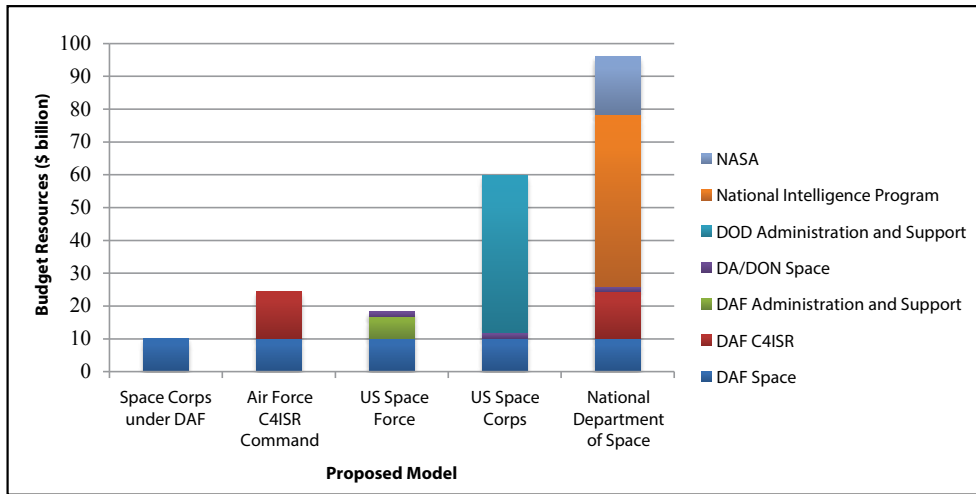


Figure 2. Summary of financial efficiency implications

Table 3 encapsulates the operational effectiveness implications of the proposed models. Although operational effectiveness is more difficult to quantify than financial efficiency, analyzing the former by model reveals general trends across the spectrum of space separatism.

Table 3. Summary of operational effectiveness implications

<i>Proposed Model</i>	<i>Operational Effectiveness Implications</i>
Space Corps under DAF	Develop forces, doctrine, and concepts of operation for space systems
Air Force C4ISR Command	Deliver effects-based space, C4, and ISR activities for the DOD and other governmental agencies in support of national interests
US Space Force	Enable force to conduct offensive, defensive, stability, and civil-support operations from the space domain
US Space Corps	Focus exclusively on core competencies, reduce functional duplication among services, and enhance interoperability among forces and operating systems
National Department of Space	Elevate the importance of space, enable the nation to better prioritize space-related activities, promote greater coordination on space-related activities, and reduce redundant systems and capabilities while promoting interoperability with space and nonspace national and international communities

Table 4 addresses the logistics implications of the proposed models through the lens of the seven principles of logistics. Given the breadth and depth of logistics support required to operate and sustain space activities, these principles are not all encompassing. Instead, they serve as a strategic lens through which to view and understand the adequacy of the proposed models from a logistics perspective.

Table 4. Summary of logistics implications

	Space Corps under DAF	Air Force C4ISR Command	US Space Force	US Space Corps	National Department of Space
Responsiveness		✓	✓	✓	✓
Simplicity	✓	✓	✓	✓	✓
Flexibility		✓	✓	✓	✓
Economy		✓		✓	✓
Attainability			✓		✓
Sustainability			✓		✓
Survivability				✓	✓

Table 5 recaps the policy implications of the proposed models. These synthesized results highlight applicability of the proposed models to current national and DOD space policy.

Table 5. Summary of policy implications

<i>Proposed Model</i>	<i>Policy Implications</i>
Space Corps under DAF	"The Air Force will recruit, sustain, and retain a workforce of highly skilled military and civilian space professionals proficient in operations, technical expertise, policy, strategy, acquisitions, contracting, managerial oversight and leadership." "The Air Force will provide space capabilities and forces, integrating them into Air Force plans, operations, and training while contributing to and enabling joint and combined forces."—AFPD 13-6, <i>Space Policy</i>
Air Force C4ISR Command	"Integrate space surveillance, intelligence, and other information from commercial, civil, international partners, and national security sources to develop timely and accurate SSA."—AFPD 13-6

Table 5. Summary of policy implications (Continued)

<i>Proposed Model</i>	<i>Policy Implications</i>
US Space Force	“Space activities will balance protecting and defending U.S. space capabilities . . . with maintaining capabilities to deter and, if necessary, defeat efforts to interfere with or attack U.S. capabilities.” —DODD 3100.10, <i>Space Policy</i>
US Space Corps	“DOD will develop and integrate into an operational space force structure all appropriate space-related defense capabilities required to support national security objectives.”—DODD 3100.10
National Department of Space	“Integrate all-source intelligence of foreign space capabilities and intentions with space surveillance information to produce enhanced intelligence products that support SSA.” “Maintain and integrate space surveillance, intelligence, and other information to develop accurate and timely SSA. SSA information shall be used to support national and homeland security, civil space agencies, particularly human space flight activities, and commercial and foreign space operations.”— <i>National Space Policy</i>

Conclusion

This article has examined the financial efficiency, operational effectiveness, logistics considerations, and policy implications of five models by which the DOD could structure future space operations. Of the models examined, the National Department of Space best addresses each of the four assessed areas. This reasonable conclusion is easily recognizable from the results in the summary section. As the scope of an organization grows, so does the potential of that organization to effect positive change at a macro scale. Reforming space operations within the Air Force, though a worthy effort, may have a limited impact on space operations of other governmental and nongovernmental agencies. Conversely, a cabinet-level department dedicated to the integrated operation of US space activities could consolidate all involved parties while synchronizing their efforts.

However, one should note that these models were presented along a spectrum. They are not isolated solutions but representative of a myriad

of possible space-force organizational models. This approach seeks to highlight the fact that the discussion regarding creation of a separate space force should be multidimensional. A model that optimizes financial efficiency at the expense of operational effectiveness may be a shortsighted solution. Similarly, a model that is logistically favorable but not synchronous with space policy is not a desirable plan. If the DOD moves towards a separate force dedicated to space activities, then it must take a holistic approach. The far-right side of the spectrum of space separatism is labeled “Space Synergy,” an idea that captures the desirable interconnectedness of space agencies to provide synchronous space-based effects.

In closing its report, the 2001 Commission to Assess United States National Security Space Management and Organization concluded that “our growing dependence on space, our vulnerabilities in space and the burgeoning opportunities from space are simply not reflected in the present institutional arrangements.”⁵⁰ The DOD must embrace this call to action as it examines the structure of tomorrow’s space force. ✪

Notes

1. Office of the President of the United States of America, *National Space Transportation Policy* (Washington, DC: White House, 21 November 2013), http://www.whitehouse.gov/sites/default/files/microsites/ostp/national_space_transportation_policy_11212013.pdf.

2. Office of the Chairman of the Joint Chiefs of Staff, *Joint Vision 2020* (Washington, DC: US Government Printing Office, June 2000), 26, http://www.fs.fed.us/fire/doctrine/genesis_and_evolution/source_materials/joint_vision_2020.pdf.

3. Commission to Assess United States National Security Space Management and Organization, *Report of the Commission to Assess United States National Security Space Management and Organization: Executive Summary* (Washington, DC: The Commission, 11 January 2001), 30–35, http://fas.org/spp/military/commission/executive_summary.pdf.

4. Lt Col Mark E. Harter, “Ten Propositions Regarding Space Power: The Dawn of a Space Force,” *Air and Space Power Journal* 20, no. 2 (Summer 2006): 64–78, <http://www.airpower.maxwell.af.mil/airchronicles/apj/apj06/sum06/sum06.pdf>.

5. Maj Alec M. Robinson, “Distinguishing Space Power from Air Power: Implications for the Space Force Debate” (Maxwell AFB, AL: Air Command and Staff College, April 1998), 47–49.

6. DODD 5100.01, *Functions of the Department of Defense and Its Major Components*, 21 December 2010, 25–35, <http://www.dtic.mil/whs/directives/corres/pdf/510001p.pdf>.

7. Office of the Under Secretary of Defense (Comptroller), *Defense Budget Materials—FY2014*, <http://comptroller.defense.gov/budgetmaterials/Budget2014.aspx>. See FY14_Green_Book.pdf.

8. Office of the Secretary of the Air Force, Deputy Assistant Secretary for Budget (SAF/FMB), *United States Air Force Fiscal Year 2014 Budget Overview* (Washington, DC: SAF/FMB, April 2013), 40, <http://www.saffm.hq.af.mil/shared/media/document/AFD-130410-051.pdf>.

9. Lt Col Kristine M. Shaffer, “National Department of Space” (Fort Leavenworth, KS: School of Advanced Military Studies, US Army Command and General Staff College, 25 March 2008), 22–25.

10. *Ibid.*, 51.

11. *Ibid.*

12. *Ibid.*

13. DODD 3100.10, *Space Policy*, 18 October 2012, 8–11, <http://www.dtic.mil/whs/directives/corres/pdf/310010p.pdf>.

14. Office of the President of the United States of America, *National Space Policy of the United States of America* (Washington, DC: White House, 28 June 2010), http://www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf; and Office of the President of the United States of America, *National Space Transportation Policy*.

15. Lt Gen Michael Hamel, “Building Space Power for the Nation: Air Force Achievements, Challenges, and Opportunities,” *Air and Space Power Journal* 20, no. 2 (Summer 2006): 58.

16. Cheryl Pellerin, “DARPA Programs Create New Future for Space, Director Says,” American Forces Press Service, 13 January 2014, <http://www.defense.gov/news/newsarticle.aspx?id=121474>.

17. Commission to Assess United States National Security Space Management and Organization, *Report of the Commission*, 26.

18. *Ibid.*, 28.

19. *Ibid.*, 18.

20. AFPD 13-6, *Space Policy*, 13 August 2013, 2, http://static.e-publishing.af.mil/production/1/saf_sp/publication/afpd13-6/afpd13-6.pdf.

21. *Ibid.*

22. Dr. Edward B. Tomme, “Emphasizing Effect over Domain: Merging Three Organizations to Enhance the Efficacy of Our Nation’s Intelligence Production,” *Air and Space Power Journal* 23, no. 1 (Spring 2009): 83–92, <http://www.airpower.maxwell.af.mil/airchronicles/apj/apj09/spr09/spr09.pdf>.

23. *Ibid.*, 90.

24. John A. Tirpak, “The Big Squeeze,” *Air Force Magazine* 90, no. 10 (October 2007): 32.

25. Office of the Secretary of the Air Force (Financial Management and Comptroller), *United States Air Force Fiscal Year 2014 Budget Overview*, 40.

26. *Ibid.*

27. Tomme, “Emphasizing Effect over Domain,” 90.

28. *Ibid.*

29. AFPD 13-6, *Space Policy*, 5.

30. Maj Norman W. Barber, Maj Richard J. Douglass, and Maj John D. DuMond, "Why Space Should Be a Separate Service" (Norfolk, VA: Joint Forces Staff College, 6 September 2002); MAJ William S. Moncrief, "Building a United States Space Force," *Army Space Journal*, Winter/Spring 2010, 34–38; COL Kurt S. Story, "A Separate Space Force: An Old Debate with Renewed Relevance" (Carlisle Barracks, PA: US Army War College, 9 April 2002); and Taylor Dinerman, "United States Space Force: Sooner Rather Than Later," *Space Review*, 27 February 2006, <http://www.thespacereview.com/article/565/1>.
31. Office of the Under Secretary of Defense (Comptroller), *Defense Budget Materials—FY2014*. See *FY14_Green_Book.pdf*.
32. Story, "Separate Space Force," 2–5.
33. Moncrief, "Building a United States Space Force," 34–38.
34. DODD 3100.10, *Space Policy*, 3.
35. Lt Col Kenneth Keskel, "Doing Things That Can't Be Done: Creating a New Defense Establishment," research report (Maxwell AFB, AL: Air War College, April 2002), 35–55.
36. Office of the Under Secretary of Defense (Comptroller), *Defense Budget Materials—FY2014*.
37. *Ibid.*
38. Keskel, "Doing Things That Can't Be Done," 35–55.
39. DODD 3100.10, *Space Policy*, 3.
40. Shaffer, "National Department of Space," 38.
41. *Ibid.*
42. DODD 3100.10, *Space Policy*, 8–11.
43. Shaffer, "National Department of Space," 28–37.
44. "DNI Releases Updated Budget Figure for FY 2014 Appropriations Requested for the National Intelligence Program," press release, Office of the Director of National Intelligence, 27 June 2013, <http://www.dni.gov/index.php/newsroom/press-releases/191-press-releases-2013/888-dni-releases-updated-budget-figure-for-fy-2014-appropriations-requested-for-the-national-intelligence-program>.
45. National Aeronautics and Space Administration, *FY 2014 President's Budget Request Summary*, 1, http://www.nasa.gov/pdf/740512main_FY2014%20CJ%20for%20Online.pdf.
46. Shaffer, "National Department of Space," 50.
47. Donald J. Bowersox, David J. Closs, and M. Bixby Cooper, *Supply Chain Logistics Management* (Boston: McGraw-Hill, 2002), 2–5.
48. Office of the President of the United States of America, *National Space Policy*, 14.
49. *Ibid.*, 13–14.
50. Commission to Assess United States National Security Space Management and Organization, *Report of the Commission*, 9.

**Capt Luke R. Stover, USAF**

Captain Stover (BS, Montana State University; MS, Air Force Institute of Technology) is the resources flight commander, 576th Flight Test Squadron (FLTS), Vandenberg AFB, California. The 576 FLTS is the only dedicated ICBM test and evaluation squadron in the country, reporting directly to Air Force Global Strike Command / Operations. He leads 22 Airmen in support of a \$350 million force-development evaluation program. A career maintenance officer, Captain Stover has held a variety of flight- and squadron-level aircraft and munitions maintenance positions. He is a distinguished graduate of the Air Force Reserve Officer Training Corps and the Air Force Advanced Maintenance and Munitions Officer School.

**Dr. Alan Johnson, Lieutenant Colonel, USAF, Retired**

Dr. Johnson (BS, Montana State University; MS, Air Force Institute of Technology; PhD, Virginia Tech) is an associate professor of logistics management at the Air Force Institute of Technology. His research interests include all aspects of military logistics but emphasize reliability and maintainability as well as their effects on the life-cycle management of weapon systems and issues related to strategic-airlift mobility.

Let us know what you think! Leave a comment!

Distribution A: Approved for public release; distribution unlimited.

<http://www.airpower.au.af.mil>